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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,173	07/25/2006	Kazuhiko Minami	292803US40PCT	7182
22850	7590	12/13/2007		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER	
			FLANIGAN, ALLEN J	
		ART UNIT	PAPER NUMBER	
		3744		
			NOTIFICATION DATE	DELIVERY MODE
			12/13/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/587,173	MINAMI ET AL.
	Examiner	Art Unit
	Allen J. Flanigan	3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-12 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-12 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____.                                     |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____.   | 6) <input type="checkbox"/> Other: _____.                         |

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 10 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Negita et al.

To quote the abstract of Negita et al:

An aluminum heat exchanger with excellent corrosion resistance and particularly suited for adaptation as radiator for automobiles, the heat exchanger having a 2- or 3-layer coating film structure consisting of a zinc-diffused layer formed on the surface of an aluminum base and a waterproof organic film formed on the zinc-diffused layer with or without a phosphoric acid-chromate coating therebetween, whereby the surface of the aluminum base is not directly contacted with at least the water-containing heat exchange medium is provided.

Note the description of the zinc application given in Examples 1 and 2 with a loading of 1 g/m<sup>2</sup> on the aluminum plate. Note also examples 7 and 8. Regarding the recitation “thermally sprayed” in claim 11, this recitation concerns the intended method of making the heat exchanger recited in claim 1. It is immaterial to the patentability of the claimed article how the zinc layer is applied, as a zinc layer applied via other methods (e.g. a chemical zinc plating bath as in Negita et al.) would be structurally indistinguishable from one formed via thermal spraying.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 7-9, and 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over The combined teachings of Negita et al. and Sakai.

Negita et al. employ a well known chemical zinc plating technique to apply the diffuse zinc corrosion protection layer 13. There are other known methods of applying zinc diffusion layers on aluminum components, such as thermal spraying (see Sakai abstract). It would have been obvious to one of ordinary skill in the art at the time the instant invention was made to substitute one known method of applying a protective zinc layer for another.

Regarding claim 4, the particular amount of zinc applied would have been obvious absent any showing of criticality. Negita et al. establishes zinc layer thickness/loading as a result effective variable, and it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to optimize the amount and thickness of zinc applied to provide the desired level of corrosion protection.

Regarding claim 7, the Examiner takes Official Notice that the use of aluminum alloys containing copper and manganese (such as A3003, for example) to form heat exchanger tubing is notoriously well known in the art,

and citation of a reference to such effect is deemed unnecessary. See *In re Malcolm*, 54 U.S.P.Q. 235.

Similarly, regarding claim 8, the Examiner takes Official Notice that the use of fins containing zinc to make them more cathodic than the tube material (and thus provide sacrificial corrosion protection to the tubes) is well known in the art, and it would have been obvious to one of ordinary skill in the art to employ zinc containing aluminum alloys in the fins of Negita et al. for this reason.

Regarding claim 12, Negita et al. do not specifically mention a condenser application for their anticorrosive heat exchanger construction, but clearly indicate a wide range of applications (see column 1). Sakai indicate that it is known to employ heat exchanging tubing with a diffused zinc protective layer in a condenser application, and it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the exchanger tubing taught in Negita et al. in such a condenser. The remaining components recited in claim 11 are conventional refrigerant system components.

Alternately, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to apply the zinc layer/chemical conversion treatment (with or without resin coating) taught in Negita et al. on the extruded tubing of Sakai to provide corrosion protection, such being no more than the substitution of known equivalents.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Negita et al. in view of Sakai as applied to claim 1 above, and further in view of Iino et al.

Iino et al. teach that it is known to chemically etch an aluminum plate to prepare it for chemical conversion treatment, and it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to apply such an etching step prior to the chemical conversion step of Negita et al. to properly prepare the surface for chemical conversion.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Negita et al. in view of Sakai as applied to claim 1 above, and further in view of Hardin et al.

As indicated in Hardin et al., chemical conversion treatments employing zirconium fluoride compounds have recently come into use to replace environmentally damaging conversion processes employing chromate compounds (see paragraph 7), and it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to replace the phosphoric acid-chromate process of Negita et al. with the more environmentally sensitive process mentioned in Hardin et al.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The remaining references of record show various corrosion resistant aluminum alloys and/or heat exchanger designs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen J. Flanigan whose telephone number is (571) 272-4910. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Allen J. Flanigan  
Primary Examiner  
Art Unit 3744